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The FOREST MANAGEMENT Newsletter

Issue 5 • Winter/Spring 2000

Communicating Issues and Ideas Important to the Management of Montana's State Forest Lands

2:1 UPDATE

Tom Schultz

During the 1999 legislative session a provision (Cobb Amendment) was added to our budget that requires us to target a revenue/cost ratio of 2:1 in our timber sales program. Over the last six years (1994-1999) the forest management program has produced a revenue/cost ratio of 1.81:1. However, the annual ratio has declined over the course of the last five years, with the FY 99 ratio at 1.36. That decline occurred for several reasons. The overriding reasons are a timber harvest volume that is considerably less than volume sold, a declining timber market (i.e. with the associated negative affect on our stumpage prices), and our increasing budget. Additional influences are our increased emphasis on acquiring permanent legal access and improving the quality of our existing access, and the implementation of the State Forest Land Management Plan.

The most immediate step we took to improve our revenue/cost ratio was to reduce our costs. For FY00 and FY01 we agreed on cuts of approximately $730,000 out of our forest management/forest improvement budgets. Some of these cuts are the result of shifting expenditures ($285,000) to other programs (12) to more accurately reflect which programs are benefiting from expenditures. Additional cuts ($445,000) were made in contracted services and capital equipment, with Forest Improvement (FI) incurring about 81 percent of those cuts in FY00, and 87.5 percent in FY01. We do not plan to cut any positions in the coming fiscal year.

We also discussed some long-term changes in our forest management/forest improvement programs that should lead to better revenue/cost ratios. The first change is to simply create an increased awareness of cost effectiveness. Every one of us has to think about our day-to-day decisions in light of the potential costs and returns associated with those decisions. It's no different than the awareness most of us have when we spend money out of our own pocket (e.g. Do I really need this new lawnmower? Is it going to cut my grass any better or faster than my old one? Etc.)

Our day-to-day decisions should be viewed as risk assessments. Often we are making decisions to spend a portion of our budget when the return is uncertain, or forego revenue when the environmental benefits are uncertain. We need to explicitly recognize the risks associated with our various decisions and weigh that risk as we make our decisions. There may be opportunities to substantially increase returns or reduce costs with very little risk in terms of financial return or environmental impacts. For example, it may be possible in some instances to earn more net revenue from a timber sale with changes in the timber sale design, while taking on very little additional environmental risk.

It is important to keep in mind that although we are looking for ways to conduct our business more efficiently, our fundamental responsibilities have not changed. We must continue to manage forested trust lands in a way that fully complies with all applicable state and federal law, and with the State Forest Land Management Plan.

The June 1999 Forest Management training and the subsequent Forest Management Advisory Committee meeting (Oct. 99) produced more specific suggestions on how to conduct our business more efficiently. Some of those ideas included:

1. Increasing specialty product sales;
2. Reviewing the tons/mbf conversion to ensure we are accurately computing the board foot equivalent of timber sales sold by the ton (est. completion June 2000);
3. Considering not marking cut/leave trees in appropriate units;
4. Better accounting of forest management program costs vs. other programs (i.e., more shifts to the 12 program); and
5. Continuing to use the FI budget to manage 2:1.

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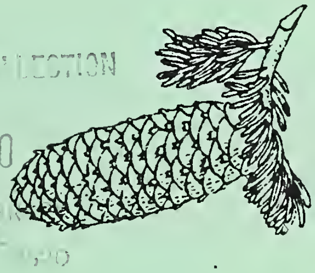

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The mid-year outlook for 2:1 looks much more promising than in FY99 due to increased stumpage prices, increased harvest of volume under contract, and cuts and shifts that were made to the FY00 budget.

As of Feb. 29, 2000 (67% of fiscal year), we have harvested approximately 41.5 MMBF (approx. 34 MMBF was harvested in all of FY 99) from timber sales and 2.5 MMBF from permits, and collected the following revenues:

Timber sales:	$8,618,814
Timber permits:	$ 543,611
FI:	$ 836,320
Total:	**$9,998,745**

If collections occur at a normal rate for the remainder of the year, we project revenues to increase to $11,639,624.

The FY00 Forest Management budget is approximately $4,404,000, which reflects the Cobb amendment cuts. In addition, the Timber Sale Accounting Summary procedure adds General Administration costs from the Division and Land Offices, which amounted to $429,762 in FY99. To estimate total costs for FY00, $430,000 was added to the FY00 FM budget for total estimated cost of $4,834,000.

Based on revenues collected to date, our current revenue/cost ratio for FY00 is approximately **2.07:1**, a 52 percent increase from FY99. If collections continue for the remainder of the year at a normal rate, and if we spend out our budget with General Administration costs remaining about the same as FY99, our ratio for FY00 will be approximately **2.4:1** ($11,639,624/ $4,834,000).

The outlook for FY01is up in the air, depending on several factors: the price we get for the large amount of volume that we have to sell yet this year (market, product mix, development costs), escalation/de-escalation, the amount of our uncut volume under contract that gets cut this FY (purchasers could cut a substantial amount of this volume in the coming months, making our ratio better than 2.4:1 this year and worse in FY01.), the rate at which logging occurs in FY01, etc. If our costs stay at about the FY00 estimated level, we need $9.7 million to make 2:1. If we harvest what we sell (42.2 MMBF), we need to collect about $230/MBF to make it. At mid year, our sold volume price averaged $214/MBF.

The survival of our forest management program depends on our ability to continue to meet all the demands of the program and remain profitable. We have clearly met that challenge in the past, and I trust you will continue to rise to this challenge, even as our program becomes more carefully scrutinized.

FISCAL YEAR 2000 TIMBER SALE STATUS

Bill Schultz

The Fiscal Year 2000 timber sale status as of March 15 is as follows:

Volume Sold To Date: 18.4 mmbf
Average Price For Volume Sold this FY: $214/mbf
Volume Presently Advertised For Sale: 2.2 mmbf — bid openings scheduled for 4/26/00
Remaining Volume to Sell This FY: 23 mmbf

Volume Taken to the Land Board this Fiscal Year: 8.6 mmbf
Remaining Volume To Be Approved By The Land Board This Fiscal Year: 32 mmbf

Approximately 23 mmbf has to be approved by the Land Board in April or May to allow us to reach our required sold volume of 42.2 MMBF this fiscal year. The sale status reports indicate that we have the sales in the "pipeline" to reach our target.

The most notable sale so far this year is the Blue Slide Timber Sale on the Plains Unit. The sale volume was 9540 tons and the minimum price was $24.54/ton. The timber was about 60% Douglas fir and larch, 20% grand fir, and a mix of other species. Average diameter was 11.1 inches. The bid opening was on September 8, 1999. The sale attracted 12 bidders, including 5 from Idaho. The winning bid of $54.24 was submitted by Crown Pacific from Bonners Ferry, Idaho. They started logging almost immediately upon award. The sale has generated $456,400 to date. Hats off to the crew from Plains!!

The last edition of this newsletter noted that our Blue Bay sale on the east side of Flathead Lake had attracted no bidders at the 11/98 bid opening. This sale was re-offered in August 1999 and was sold at the very respectful price of $30.51/ton.

SPRING TRAINING 2000 – June 5-8

This year's Spring Training session is titled "Issues and Opportunities Facing Forest Management in the 21st Century." In addition to internal presentations and updates on old growth, T & E Species, Stand Level Inventory/GIS, Economics, and Monitoring, we plan to have two panels with outside guest speakers. The first panel will be comprised of state and federal resource specialists who will discuss their areas of expertise, while emphasizing opportunities for dealing with current challenges facing forest management. The second panel will be comprised of representatives from other western states that manage trust lands. The purpose of this panel is to share ideas for dealing with common issues facing management of forested state trust lands in the West. The final day of train-

SENATE BILL 411 – Return on Asset Report
(77-1-223 - 225 MCA)

Bill Schultz

This law, passed by the 1999 Legislature requires that the Land Board report to the beneficiaries the return on asset value from classified forest lands. The report is required to be produced annually and include the ten year rolling average of return on asset by trust for classified Forest lands for each Land Office The first report will cover the period 1991-2000. The Forest Management Bureau is charged with writing this report. We plan to have it completed in October 2000. The task is divided into two broad categories: 1) determining the asset value and 2) determining the revenue from classified Forest lands.

Determine the Asset Value
The statute designates that the valuation of classified Forest lands be completed using the same methods that the Department of Revenue (DOR) uses to determine forest land value for taxation purposes. Brian Long and Donna Leeper, with the help of a contractor, have assigned a productivity classification to all classified Forest lands. This information has been developed as a GIS overlay/database. Total forested area includes 463,000 acres. Cabinsites and homesites are classified as "Other" lands and are not included in the land base for asset value determination. Revenue from lands not classified as Forest will not be included in the calculation.

The next step in calculating the asset vale is to determine the land value for each productivity class by tax zone. Will Wood is using DOR methods to calculate this value for each productivity class and tax zone for each year of the 10 year averaging period (FY91 through FY00).

The results from these two steps will be combined to calculate the asset value by trust by Area Office.

Calculate the Revenue From Classified Forest Lands By Land Office By Trust For FY91-FY00
Jane Markland has used 10 years of accounting records to determine the revenue from forest product sales. This includes gross receipts from timber sales, timber permits, post and pole permits, and firewood permits.

To determine the revenue from other uses of classified Forest lands Brian Long has worked with Bob Auer to develop a database with gross receipts from grazing, minerals, oil and gas, special recreational use leases, and conservation leases and licenses by section. This database will be used determine revenue by trust and land office. We will also include a prorated portion of the recreational use license collection. Annual appreciation in the value of the land, will be included as revenue, as allowed by the statute.

Calculate the Return on Asset Value
The asset value and revenue by Land Office and trust will be used to calculate return on asset. Revenue will be adjusted to current year dollars and averaged for the period FY91 through FY2000.

Forest Management Bureau personnel met with the bill sponsors, Senator Bill Crismore and Representative Doug Mood, and Cary Hegreberg, WPA, in January to ensure that we are meeting the intent of the law and provide input on several issues that had developed. They concurred with our efforts to date and agreed to meet again with us this summer to lend additional guidance. They indicated that they would like to see net return on asset as well as gross return on asset, and we are working on this issue. We have assured Area Managers that they will have an opportunity to review a draft report. If you have questions, please contact Tom Schultz, Bill Schultz, Brian Long, or Will Wood.

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ing will consist of an optional field trip to visit the Rollins Chunk timber sale on the Kalispell Unit. The focus of the field trip will be on sale administration, but we fully expect the discussions to expand beyond this topic.

The training session will take place from June 5-8, and will be held at the Hampton Inn at 1140 Highway 2 West in Kalispell. Room reservations are being held under "Department of Natural Resources". Room rates are $58.00 per night (Kalispell is a high cost city after May 1st so lodging is reimbursable). When making reservations, please use the "Department of Natural Resources" GROUP NAME as there is a block of 45 rooms reserved. For reservations, telephone (406) 755-7900. Guarantee rooms under your individual credit card. Rooms will be held for DNRC until May 4, 2000. Beyond this date, you will likely have to stay at the Red Lion Inn (3 or 4 blocks away) so make reservations soon!

There is a 24-hour indoor pool, spa, and rec. room, so come prepared. A continental breakfast is included in the room charge. If you want to bring a lap top and complete work there is a computer port in each room (and also a separate business center with copy machine, telephones, computer & printer, etc.).

Please call Ted Giesey (406-751-2244) if you have any questions regarding accommodations, and call Scott McLeod (542-4269) if you have any questions pertaining to the agenda.

See you all in June!

Old Growth Management on School Trust Lands: Refining Our Process

Scott McLeod

Certainly, all of you are aware that old growth management continues to raise concerns internally, while remaining an issue with the Land Board, concerned citizens, industry and beneficiaries. In large measure the external concerns stem from dissatisfaction with the outcomes regarding amount of, and attribute levels in the old growth we are committed to retain. Internally, foresters have expressed discomfort describing our old growth working definition to the public, and the inability to manage for old growth attributes in areas accessible to the public. During the past year we have made several attempts to work through internal and external concerns through the old-growth working group, and by meeting and corresponding with our critics. Despite our on-going efforts to engage in a good faith dialog regarding the issues, our external critics have brought their concerns before the Land Board and their staff. To help appease concerns raised, the Land Board is in favor of us taking additional steps to refine our process.

Over the last year we have bolstered our comfort level with our process through two comprehensive scientific reviews. The in-depth scientific reviews have been largely supportive of our efforts. That includes support for the hotly disputed use of climatic section averages, our use of the 1930s inventory, and our appropriate conditions filter. However, a couple of areas can still be addressed to solidify our efforts, including a better process for ensuring that we won't cut all old growth down to our working definition, and a desire by some for a more restrictive old growth definition.

To help meet these concerns, we are developing for internal and external review at least two options that refine our process. We are simply talking about refining our process, not starting over, given the scientific support for our processes of determining what our commitment equates to in terms of acres of specific cover types. Both options rely heavily on the old growth indices developed by the old growth working group.

Option one looks at previously untreated old growth stands to derive an estimate of the proportions of high, medium, and low attribute old growth that may have occurred under more natural conditions. This option is premised on the belief that old growth naturally existed with a continuum of attribute levels, and that lower attribute levels present in some stands not meeting a popular notion of old growth would nonetheless provide important habitat value to some wildlife species. Consequently, our old growth commitment would contain stands displaying a range of attribute levels, in proportions approximating natural conditions.

Option two focuses on determining an old growth index rating that would serve as a threshold for labeling a stand as old growth or not. This option is premised on the assumptions that stands with lower attribute levels do not provide important habitat values to old growth associated species, and that a meaningful threshold between these levels can be determined and defined with a quantitative index. Under this option our old growth commitment would consist of stands with medium and high attribute levels, which would meet a more popular notion of old growth.

Both options have their own suite of advantages and disadvantages. Some advantages associated with option one include: it sets target proportions of high, medium, and low attribute old growth that ensures we would not cut all old growth down to our minimal definition; our old growth commitment would include stands that display a range of attribute levels; it avoids a boundary between labeling some stands with significant attribute levels as old growth while others do not receive such designation; and it should reduce confusion over appropriate harvest levels in some types of old growth. Disadvantages would include: it does not appease critics concerned with only high attribute old growth; it only works where we have quantified attribute levels; and the distinction between attribute classes may not be biologically meaningful and could be construed as subjective.

Some advantages of option two include: the definition would be closely tied to popular notions of old growth; it would provide a clear, though subjective threshold defining the conditions when a stand would be labeled as old growth; and it would clarify how and when harvesting removes a stand from old growth designation. Disadvantages include: the 50% commitment would not protect old stands not labeled as old growth; it would create controversy when stands were on the borderline between old growth and not old growth; it would require several different old growth definitions depending on cover type and climatic section; and it would imply an unwarranted level of precision in labeling old growth when the significance of attribute levels in stands is not fully understood. One important aspect of this option that may be construed as an advantage by some and as a disadvantage by others is that fewer acres would be retained to meet our commitment. This is derived from the unentered stands data, which shows that not all old stands are old growth.

Additionally, the Montana Old Growth Project has agreed to provide us with another option that addresses their concerns. This option will be analyzed with the other two options. Any option we select will require additional analyses at the project level. We fully recognize this and are conscientiously looking for ways to make analyses less cumbersome. Unfortunately, more cumbersome analyses are necessary to provide additional assurances to our critics.

From the outset we recognized the need for an adaptive management approach to our old growth commitment. For one thing, we've had to develop procedures for which no precedent existed. It's not just that DNRC did not know many of the answers, the answers were not known and are not known to the broader scientific community. So, our policies and guidance have to change in response to more and better information. However, we also have to accept that there is no such thing as perfect knowledge or data in natural resources. Not only are there continuing developments on the scientific front, they also occur on the political front. Often the two are in conflict. We recognize that some critics will not be happy with any process that allows harvesting of old growth on school trust lands. We also acknowledge that new developments appealing to one group may cause concern among other groups who previously have been able to abide our process as reasonable and responsible.

Our management is premised on adaptive management and our guidance and policies will continue to change with new information, interagency working group discussions, and ongoing political pressures from various groups. We ask that the field foresters bear with us, and work with us to continually improve the guidance and ensure that what we are proposing makes sense on the ground and that it can be implemented.

The timeline for completion of these refinements is very ambitious. Your timely comments will be invaluable to us.

May 1	Circulate internal draft for comment.
May 26	Internal comments due.
June 5	Revision circulated for external and additional internal comment. Send to selected scientific reviewers.
July 5	Internal and external comments due.
August 1	Determine which option best meets SFLMP objectives and DNRC capabilities.

SFLMP IMPLEMENTATION GUIDANCE UPDATE

Kathy O'Connor

The guidance for SFLMP implementation is nearly complete. The bulk of the RMS guidance was released in 1998, and the following guidance was distributed in 1999 and early 2000. But don't expect your binders to gather dust. Following the principles of adaptive management, we'll update and supplement the guidance as issues (such as Old Growth and Threatened and Endangered Species) continue to evolve.

- Watershed (20—Water Quality Monitoring) – 6/30/99
- Weed Management (1, 2, 3a, 6, 7, 11) – 9/15/99
- Biodiversity (Supplement A—Old Growth Definitions) – 12/30/99
- Biodiversity (Supplement B—Ponderosa Pine Old Growth) – 1/21/00
- Wildlife Monitoring (Sensitive Species #9, Big Game #6) – draft out for review 3/13/00
- Biodiversity (8, 11—Monitoring) – draft out for review 3/13/00

Please review your SFLMP Implementation Binders to be sure that you have this Final Guidance. If you are missing any of the guidance, please check with other unit/area personnel for copies, or contact me at 542-4302 and I'll send it to you.

The Bureau specialists are currently shifting their focus to preparation of the first Monitoring Report for the SFLMP, which is due to the Land Board by October 2000. The report will summarize the results of timber sale inspections and resource monitoring since the plan's adoption. The Biodiversity Working Group will conduct two more Field Reviews this summer, which will also be included in the report.

CHANGES IN TMDL RULES

Gary Frank

UPDATED STREAMS LIST

Section 303(d) of the Federal Clean Water Act and related regulations requires states to assess the condition of their waters and to determine where water quality is impaired (does not meet water quality standards) or threatened (is likely to violate standards in the near future). The results of this review are the 303(d) list, which must be submitted to EPA by states every other year. Section 303(d) also requires states to prioritize and target water bodies on their 303(d) list for development of water quality improvement strategies such as Total Maximum Daily Loads (TMDL's). A TMDL is a tool used for implementing state water quality standards. It is based on the relationship between sources of pollutants and in-stream water quality conditions. The TMDL establishes the allowable loading for specific pollutants that a waterbody can receive without violating water quality standards, thereby providing the basis for states to establish water quality-based pollution controls.

Recently the Montana Legislature passed legislation requiring the Montana Department of Environmental Quality (DEQ) to evaluate waterbodies on Montana's 303(d) list and determine if sufficient and credible data exist to support their listing. DEQ recently finished this review and streams not meeting the sufficient credible data requirement will be removed from an updated version of 303(d) list. The revised list must be submitted to EPA for approval in April 2000. Streams proposed for removal from the list include several of special interest to DNRC Trust Land Management including: Tamarack Creek, Twelvemile Creek, South Fork Fish Creek (all in Missoula Unit); Upper Willow Creek (Anaconda Unit); Little Thompson River, Henry Creek, Lynch Creek, Fishtrap Creek (Plains Unit). Streams removed from the list will be reassessed by the DEQ staff as soon as practical to determine if re-listing is appropriate.

PROPOSED RULES

In August of 1999 the U.S. Environmental Protection Agency (EPA) published proposed revisions to the TMDL regulations and associated rules for the National Pollutant Discharge Elimination System (NPDES). If the new rules were to be adopted as proposed, there is no doubt that several aspects of the Montana TMDL and nonpoint source program would be effected. While the brunt of this impact would fall on DEQ programs, it is difficult to determine the subsequent effects of the proposed rules on DNRC trust land management.

However, there are several key rule changes with implications that could affect DNRC. For example, the proposed revision of the definition of "load allocation" would include atmospheric deposition as a nonpoint source of pollutants. The proposal also adds the requirement that natural background, atmospheric deposition and other nonpoint source loads be separately allocated where possible. It's possible that this could have the effect of regulating slash treatment, site preparation or broadcast burning activities occurring in a watershed where a TMDL has been completed that includes a load allocation for atmospheric deposition of nutrient pollutants. In some cases, limits resulting from these load allocations could directly conflict with requirements of the Hazard Reduction Law and Rules and/or Trust Land Management goals and objectives.

The rule change with the most potential to directly affect DNRC trust land management is EPA's proposal to modify the current definitions of the term "point sources" with respect to discharges associated with silviculture. Under current regulations, the definition of point sources categorically excludes runoff associated with most silvicultural activities from the NPDES permitting requirements. The proposed rule change would remove the categorical exclusion for nursery operations, site preparation, reforestation, and subsequent cultural treatments, thinning, prescribed burning, pest and fire control, harvest operations, or road construction and maintenance from the definition of point sources. Instead, on a case-by-case basis, selected silvicultural sources could be designated for regulation under the NPDES program. These designations would be based upon determination that the source contributes to a violation of water quality standards and is a significant contributor of pollutants.

EPA is currently in the process of reviewing the 30,000 comments to the proposed rules they had received by January of this year. The "rumor" is that the rules will be finalized and approved this summer before the Clinton administration leaves office.

TMDL LAWSUIT

Five Montana based environmental groups – Friends of the Wild Swan, American Wildlands, Montana Environmental Information Center, The Ecology Center, and the Alliance for the Wild Rockies recently challenged the adequacy of the State's TMDL program and filed suit in Federal District court in February of 1997. In November of 1999, U.S. District Judge Donald Malloy ruled on the case.

In the lawsuit the plaintiffs contended that EPA breached a mandatory duty to identify Montana's Water Quality Limited Segments (those streams on the 303(d) list) and develop corresponding TMDLs. The plaintiffs also alleged that EPA's failure to identify Montana's WQLS and develop TMDLs constitutes "agency action unlawfully withheld or unreasonably delayed." In addition, the plaintiffs wanted a declaration that EPA's approval of Montana's 1998 303(d) list and TMDLs was arbitrary and capricious because the approval submission was deficient in six respects.

The judged ruled in DEQ's favor on the first two counts and on 5 of 6 parts of the third count. The judged ruled in the plaintiffs favor that Montana's submission of 130 TMDLs in 1998 fails to meet the Federal Clean Water Act's Requirement that states promptly develop TMDLs for 303(d) listed streams.

DNRC WATERSHED MONITORING ACTIVITIES

Gary Frank

Last field season, the FMB hydrologist and associates were implementing the Water Quality Monitoring Program developed under the State Forest Land Management Plan (SFLMP). Most of the monitoring is being completed through contracted services, so it's been a "trial by fire" into the world of contracts, RFPs and contract administration. A special thanks to all of the unit staff and the NWLO hydrologists for their help and cooperation.

One of the most ambitious goals of the SFLMP Water Quality Monitoring Program is to systematically determine the sources of watershed impairment on school trust lands and to develop strategies for remedial actions as required under SFLMP Watershed RMS #3. To accomplish this, we are conducting watershed inventories throughout the State on drainages that have been prioritized according to a set of criteria established under guidance developed for Watershed RMS #3. Priority is given to those drainages where a sensitive fishery or other sensitive beneficial use is present, streams on the 303(d) list of impaired water bodies, and/or areas with a proposed DNRC project within the watershed. Both unit and area field offices were consulted before final selection of the watersheds to be inventoried.

During the inventories, all roads, stream crossings and reaches of stream channel and associated riparian areas are surveyed in order to identify existing or potential sources of erosion and sediment delivery to streams or other water resources. Road closure status and maintenance needs are also noted.

Last summer watershed inventories were completed on 11different watershed project areas by DNRC forest hydrologists and DNRC contractors. These projects included:(1) West Fork Swift Creek, and (2) Lower Swift Creek within the Stillwater Unit; 3) Whitetail Creek in the Swan Unit; 4) Foothill area on the Kalispell Unit; 5) Lyons Creek on the Helena Unit; 6) Alaska Basin on the Dillon Unit; 7) Praine Creek, 8) Andrews Creeks, and 9) Lyman Creek on the Hamilton Unit, and 10) Beaver Creek, and 11) Bear Creek on the Anaconda Unit.

We are currently working on summary reports for each of these inventories to be passed along to DNRC management, and DNRC unit and area field staff. These reports will summarize all relevant information concerning the sources and potential sources of water quality impairment identified during the inventories. They will also contain recommendations and priorities for remedial actions to address these problems. A majority of these recommended actions will consist of road and stream crossing structure improvements and mitigation measures that can be integrated into proposed timber sale project contracts. Other watershed improvement projects will be implemented as funding allows.

Twenty internal BMP audits were also completed on ongoing and recently completed DNRC timber sales this past field season. The audits were conducted by hydrologists and soil scientists from the FMB and the NWLO. All DNRC field units with an active timber sale program participated in the audits, with the exception of Missoula and Dillon Units. Audits will be completed on those units in the near future. The information collected during the internal audits will be compiled and summarized in a format similar to that used in the Statewide Audit Reports of the recent past.

The hydrology and soils staff is also planning to complete a minimum of 20 internal BMP audits next field season. Coincidentally, several of us will also be participating in the Statewide BMP Audits being coordinated by Service Forestry Bureau this summer. DNRC has tentatively been allocated 5 audits during this process. I have submitted approximately 30 DNRC candidate timber sales for random audit site selection by Service Forestry.

Several site-specific monitoring projects have been implemented or maintained over the last field season. These monitoring projects are designed to help assist DNRC to quantitatively determine the effectiveness of BMPs and other mitigation measures in reducing nonpoint source pollution, and to quantify water quality and selected biological and physical characteristics of representative watersheds. Site-specific monitoring projects implemented to date include:

1. Monitoring of sediment delivery down slope of temporary road construction and crossings of several ephemeral draws within the Quiet Stems Timber Sale on the Clearwater Unit.

2. Establishment of reference reaches on Chicken Creek and Chepat Creek on the Stillwater State Forest; Deerhorn Creek on the Plains Unit; and O'Dell Creek on the Dillon Unit. (Reference streams are used as control sites, which established and document

characteristics and conditions of streams representing natural or relatively undeveloped conditions.)

3. Monitoring of riparian vegetation and streambank stability to document the effects of riparian grazing and the effectiveness of a recently completed riparian restoration project in Blanchard Creek on the Clearwater Unit.

4. Monitoring of riparian vegetation and streambank disturbance following changes in grazing management on several state parcels in the Praine and Andrews Creeks on the Hamilton Unit, and the Little Thompson River on the Plains Unit.

This upcoming field season will follow up on several of these ongoing monitoring projects as well as increase our watershed monitoring efforts. Some projects being planned include:

1. Watershed inventories of the Thompson River drainage (Plains Unit), Fitzsimmons and Middle Swift Creek drainage (Stillwater Unit), Goat/Squeezer Creek drainages (Swan Unit), Bear Canyon (Bozeman Unit), Basin Creek (Dillon Unit), Fish Creek (Missoula Unit), and Garden City project area (DNRC parcels in the Missoula urban area),

2. Fisheries presence/absence, population and habitat condition surveys for Bear Creek and Beaver Creek, Phoenix Timber Sale Anaconda Unit.

3. Development and implementation of a pilot study/ monitoring project for several demonstration SMZ harvest units adjacent to a bull trout stream in the Skalkaho Timber Sale on the Hamilton Unit. This project will investigate the potential effects of various levels of SMZ harvest on bull trout habitat (riparian stand structure, future large woody debris recruitment, stream shading and stream water temperature).

4. Continuation of the development of a cooperative fisheries monitoring program with the Department of Fish, Wildlife and Parks, and the BLM on the Dillon Unit. New data will be collected in Alaska Basin, Limestone Creek, Basin Creek, White Creek and Price Creek.

We are still interested in setting up temperature and large woody debris recruitment monitoring on reaches of stream with harvest proposed immediately adjacent to it, or sediment monitoring of new or reconstructed stream crossings. If any project leaders are planning activities which might be good candidates for these types of monitoring projects, please contact me.

NOXIOUS WEED GUIDANCE

Jeff Collins

Alien weeds are spreading, and some of the worst are knocking at Montana's border, yet most of our forest sites remain clean of noxious weeds. Public concern is increasing about the existing and potential effects of noxious weeds, and DNRC land managers face the challenge to develop and implement effective weed control associated with our forest management activities.

The SFLMP noxious weed management guidance, which was finalized in September of 1999, includes many items already put into practice by State forest managers. As part of the guidance, the weed working group sought to define DNRC's vision of **I**ntegrated **W**eed **M**anagement **(IWM)** methods applied to forest projects that will serve as a reference for managers. The **IWM** methods include local coordination, inventory, treatment planning and implementation, and education. New items guiding weed management are:

Phase in the guidance on new projects. No need to delay projects already in the works.

Local/County Coordination. Each Field Office should have a professional familiar with weed control methods and involved with the local Weed Districts Cooperative 6 year Integrated Weed Management Agreements **(CINWA)** plans. We are to include weed districts in timber sale scoping. This can be accomplished with sale listings and during ongoing meetings with weed districts. This is also an opportunity for the weed districts to help us. Ask for known weed occurrences, county priorities, and any cooperative projects in sale vicinities. Cooperative projects with adjacent lands give DNRC opportunities to request matching grant fund dollars that extend weed control on DNRC lands. A great example is the cooperative efforts to contain and control tansy ragwort and new invaders by a cooperative of Weed Districts, DNRC, Plum Creek, Kootenai/Flathead USFS and private landowners in Lincoln and Flathead Counties.

Inventory and treatment planning. For proposed forest management activities, we should inventory weeds, develop weed management objectives, and plan treatment measures where needed. Detection and early control of small weed patches is the most cost effective means of controlling weeds. To streamline this effort, we designed an all-in-one form for weed inventory and management that is included in the appendix to the Weed Guidance. A priority in treatment planning is to keep weed free areas clean and stop new invader weeds.

Where weeds occur, we select the preferred objective (eradicate, contain, control or tolerate). We also select the recommended treatment based on the options available (biocontrol, herbicide road edges, revegetation, etc.) and their effectiveness. Treatments should be applied where they are most effective and not just where the most weeds are.

Planning also includes R/W requests and Special Users that propose ground disturbances on State land (new road, gravel pits, etc). Permittees would be required to control weeds on the affected State land.

Implementation. Prevention is always paramount in our minds, as operators move their equipment across the State of Montana and even from out of State. DNRC has been a leader in requiring off-road equipment to be cleaned of weeds and mud for inspection prior to moving on-site. This continues to be important, even for equipment moving within a county.

Revegetation. Guidance recommends that we seed disturbed areas such as roads within 15 days, unless roads are completed in the summer on dry sites (special circumstance for dry conditions). We are also to seed disturbed riparian areas and wet sites within a couple of days to control erosion and provide competition for weeds.

Biocontrol. Last summer DNRC offices throughout the State released biocontrol bugs on spurge and knapweed. Most of the insects are adapted to more open forest settings. An emphasis has been to start new insectory sites on State lands that we can collect and redistribute from in the future. The spurge flea beetles seem to be the most effective, but we need a large population to collect from. 1999 was a good year with increased dispersal of flea beetles supplied by Craig Roberts and the BLM at Lewistown where numbers are high enough to allow collecting. Knapweed insects have also been released on all units, but availability and effectiveness is limited. This year it is important that we follow up with additional releases on some previous sites, to ensure that we have established colonies and hopefully shorten the period for exponential bug population growth.

Herbicides have been used for selected sites, such as roadside edges and new weed infestations, where early eradication is most effective. These operations are easier to handle when County Weed districts or commercial applicators complete the applications.

Education. Weed control methods and effectiveness are changing and improving. The combinations of integrated weed management methods are still being evaluated. DNRC field professionals should make an effort to pursue local and area weed training when feasible to stay current in the IWM methods. At least one person from each unit office should have advanced training in weed management to provide local coordination with the public and weed districts. Each year, DNRC foresters take the herbicide applicator training to become licensed in the evaluation of application and safe use of herbicides. In addition, DNRC education efforts include assembling more weed identification brochures for Unit Offices to give to the public.

Weeds will continue to advance, but we have an opportunity with our on-going forest operations to contain noxious weeds, reduce existing populations and promote competitive vegetation. DNRC professionals are making a difference. In the course of your regular duties, try to include a review of one of your treatment sites this year.

ECONOMIC TRENDS

Will Wood

In this article I will discuss the following ideas: current status of stumpage prices and target stumpage price levels, pulp's effects on total revenue, sale development costs and 2:1, and recent winning bids for timber sales and sale characteristics.

1. Target Stumpage Levels

Program-wide analysis indicates that for the Forest Products Sales program to maintain 2:1 revenue cost we need prices in the $190-$200/MBF range on the west side and $140-$150 for the east side. These figures do not include Forest Improvement collections.

Table 1 lists the average stumpage price sold for each Land Office and is from the Accounts program. The Accounts program is used to create the billing for timber sales. These estimates due not include timber permits. These value below are within the target range for sold stumpage that is needed to maintain a 2:1 revenue to cost ratio for the Forest Product Sale program.

Table 1 Estimated Sold $/MBF from the Accounts Program

From 7/01/1999 to 02/29/2000

Land Office	Total Volume Sold (MBF)	Total Value Sold ($)	Average Stumpage Price Sold $/MBF
NWLO	11,948	$ 2,669,870	$ 223
SWLO	3,434	$ 721,897	$ 210
CLO			
NELO			
SLO	538	$ 72,825	$ 135
ELO	863	$ 115,420	$ 134
TOTAL	16,782	$ 3,580,012	$ 213

2. Mandatory Pulp or Optional Pulp

The follow analysis examines the effect of counting pulp against the sustain yield target and 2:1. While in this example I am using pulp, the same principles apply to other low value products (include sawlogs and other convertible products). Pulp is a low valued product. One truckload of this material is worth between $40 to $70. On the other hand one load of sawlogs could range between $450 to $1000. By Removing pulp trees from a stand, there is potentially an increase in future growth and a lower stand risk related to potential problems from insects and maybe fire. Given the current budget constraints, this type of stand treatment would probably not get done using FI funds. Selling pulp as an optional product is one method to increase the dollars to the trust and leaving behind a potential more productive stand. On the other hand once the pulp is mandatory this impacts the ability of the forest management program to meet the 2:1 obligation given current policy. The current policy is that mandatory pulp is counted towards meeting the volume target. This is done by converting the volume of pulp tons into thousand of board feet. The following scenarios illustrate the problem (see table 2). In both scenarios the targeted total volume is 12,440 MBF per year. In the first scenario the first example includes counting 16,000 tons of pulp towards this target. This converts to 2,461.5 MBF at $13.00 per MBF. The second example in the first scenario includes another sale that yields the same amount of MBF but at a stumpage price of $140 per MBF. In the first scenario the resulting revenue to cost ratio is 1.77 for example #1 which includes pulp and 2.00 for the example #2 which uses another timber sale to meet the target. The second scenario only counts 8000 tons of pulp toward the target volume level which yields the resulting revenue to cost ratio of 1.93 for including pulp and 2.05 with another sale.

Table 2 Affects of Pulp of Revenue-to-Cost Ratio – Two Scenarios

Scenario #1

		Sawlogs		
	Pulp Tons	MBF	$/MBF	Total $
Example #1		9978	$ 190	$ 1,895,902
	16000	2461.5	$ 13	$ 32,000
Total	12440	$ 155	$ 1,927,902	
Example #2		9978	$ 190	$ 1,895,902
	0	2461.5	$ 140	$ 344,610
Total	12440	$ 180	$ 2,240,512	

	AverageStumpage $/MBF	FI $/MBF	Costs $/MBF	Revenue to Cost Ratio
Example #1	$ 155	$ 42	$ 111	1.77
Example #2	$ 180	$ 42	$ 111	2.00

Scenario #2

		Sawlogs		
	Pulp Tons	MBF	$/MBF	Total $
Example #1		11209	$ 190	$ 2,129,754
	8000	1230.8	$ 13	$ 16,000
Total		12440	$ 172	$ 2,145,754
Example #2		11209	$ 190	$ 2,129,754
	0	1230.8	$ 140	$ 172,312
Total		12440	$ 185	$ 2,302,066

	AverageStumpage $/MBF	FI $/MBF	Costs $/MBF	Ratio Revenue To Cost
Example #1	$ 172	$ 42	$ 111	1.93
Example #2	$ 185	$ 42	$ 111	2.05

In conclusion, I would recommend that the Department include pulp as an optional element in the timber sale or when is it required, due to silvicultural reasons, not count it towards the volume target. If pulp is required and is needed to meet volume targets, keep the total amount for a given year less than 1 MBF per 10 MBF sold.

3. Development Costs and 2:1 Summary of Analysis for the Stillwater Unit in Northwest Land Office

The following are highlights of an economic analysis that tries to address the question, what amount of development on average can a sale bear and still meet 2:1? The answer to this question is related to the proposed sale average harvest DBH, logging system mix, species and product mix, current market conditions and the average cost per MBF for the Northwest Land Office. While this analysis is focused at the sale level it is impossible to have every sale be at 2:1. Thus the analysis of the ability of a Unit or Land office to produce a 2-to-1 program should be done across a collection of sales that are planned. The following sections were included in the analysis.

1. An estimate of the average costs per thousand for the NWLO based on the 1999 TAS report and budgeted costs for the forest management program for FY2000. This cost is an estimate.
2. Logging system costs were analyzed by developing timber sale alternatives based on range of different mixes of logging system.
3. The timber sale alternatives are analyzed for a range of delivered log prices, and for two different sets of logging & hauling costs (stand average DBH = 10" and stand average DBH = 15"),
4. A range of delivered log price scenarios are estimated based on using the average and high values from two quarter in 1998 and 1999 for different species and product mixes.
5. Comparing Recent Timber Sale Bid Prices with Residual Value Estimates of Delivered Log Prices

CONCLUSION

The average amount of development costs that a sale can have and still meet the a revenue-to-cost ratio of 2:1 is a function of the current lumber and stumpage market, average cost, logging system mix, average DBH and species and product mix. As long as market conditions stay the same and the logging system mix is not weighted too heavily toward expense logging systems, and the species mix is not mostly 9-10" true firs then I would target development costs in the $40-$50 per MBF for the Stillwater Unit as a whole.

MARKET CONDITIONS

The current Lumber and stumpage market is out of our control. By law we have to sell 42.2 MMBF or equivalent every year regardless of the current market conditions. Long term the projections for stumpage are for an increase in real price for stumpage. If the closing of regional mills continues, this could negatively influence future stumpage price. Without adequate competition the stumpage price that DNRC obtains will surely be reduced. The losing of American Timber as a bidder reduces the ability of DNRC to meet the revenue-to-cost ratio target of 2:1.

DEVELOPMENT COST PLANNING

Costs are one of the factors that are in DNRC control. The Stillwater Unit is faced a with back-log of bridge replacements, culvert replacements, road reconstruction and road maintenance work. It may be unrealistic to believe that DNRC can upgrade the items over a relatively short time period and still meet the 2:1 target. One method for managing these costs is to target an average development cost of $40-$50 per MBF for the unit and use the target sold volume from the unit to estimate the total budget.

If you are interested in the complete analysis please email Will Wood.

Recent Winning bids for Timber Sales and Sale Characteristics.

Table 3.1 Winning Bid and Other Costs From Recent Sale from NWLO, SWLO, and CLO

Sales Sold by the MBF

Sale Name	Land Office	Date Year.Month	Volume MBF	Winning Bid $/MBF	Other Cost $/MBF	Development Cost $/MBF	Total (Win Bid+ Dev. + Other)	Mininum Bid	Diff. $/MBF (Win - Min.)
AVON SOUTH #2	SWLO	1998.07	976	167.09	52.83	70.76	290.68	158.20	8.89
POTOMAC	SWLO	1998.08	2235	131.86	48.90	31.07	211.83	131.80	0.06
2% CABLE	SWLO	1998.08	562	131.62	47.77	60.97	240.36	121.70	9.92
PAINTED ROCKS	SWLO	1999.06	628	127.67	45.52	29.91	203.10	94.60	33.07
FLAT PARDEE	SWLO	1999.06	4000	256.42	49.78	20.22	326.42	107.40	149.02
CLEARWATER RVR #1	SWLO	1999.07	2738	227.60	45.52	25.00	298.12	109.00	118.60
MCKAY CREEK	SWLO	1999.07	477	145.01	32.63	124.84	302.48	69.70	75.31
YANK CREEK	CLO	1999.01	394	172.26	12.71	45.77	230.74	162.56	9.70

Sales Sold by the Ton

Sale Name	Land Office	Date Year.Month	Volume Tons	Winning Bid $/Ton	Other Cost $/Ton	Development Cost $/Ton	Total (Win Bid+ Dev. + Other)	Mininum Bid	Diff. $/MBF (Win - Min.)
SPRING ROCK	NWLO	1998.07	23075	32.00	7.34	3.56	42.90	31.95	0.05
STEWART BUTCHER	NWLO	1998.09	7274	21.06	8.53	16.41	46.00	17.26	3.80
TWO CROW	NWLO	1998.10	12480	34.62	7.14	1.82	43.58	31.91	2.71
MAGPIE CREEK	NWLO	1999.04	12279	26.90	7.14	10.60	44.64	19.74	7.16
RHODES DRAW	NWLO	1999.04	7869	36.05	7.14	2.09	45.28	24.14	11.91
CYCLONE/COAL 99	NWLO	1999.06	22835	27.30	7.14	7.54	41.98	17.15	10.15
BOYER FIRE SALVAGE	NWLO	1999.06	15997	35.24	7.27	3.93	46.44	15.97	19.27
ROLLINS CHUNK	NWLO	1999.07	48269	32.18	7.97	5.02	45.17	16.94	15.24
BLUE BAY	NWLO	1999.08	7105	30.51	7.13	6.37	44.01	22.18	8.32
BEAVER '99	NWLO	1999.08	9081	23.89	7.14	13.55	44.58	13.97	9.92
COOK BEAR	NWLO	1999.03	17511	26.25	7.14	2.10	35.49	22.60	3.65
BLUE SLIDE	NWLO	1999.09	9542	54.24	7.14	1.68	63.06	24.54	29.70
SMALL SQUEEZER	NWLO	2000.01	3666	45.13	9.84	0.00	54.97	30.94	14.19
TARKZEAU REGULAR	SWLO	1999.06	6000	19.60	7.29	6.13	33.02	15.92	3.68
AVON EAST	SWLO	1999.12	1417	20.81	6.48	3.73	31.02	14.09	6.72
BLACKTAIL	CLO	1998.08	33150	16.26	1.24	2.25	19.75	14.00	2.26

Table 3.2 Sale Characteristics from Recent Sales from NWLO, SWLO, and CLO

Sale Name	Land Office	Date Yr.Mo.	% Volume Clearcut or Seed Tree	# of Bidders	Percent Harvest Volume by Logging System: Tractor	Skyline	Softtrack	Heli.	Ave DBH	Harvest Volume MBF/Acre	Tons Sale
SPRING ROCK	NWLO	1998.07	23	1	83	17	0	0	8.80	7.68	Yes
STEWART BUTCHER	NWLO	1998.09	63	3	100	0	0	0	10.20	6.47	Yes
TWO CROW	NWLO	1998.10	0	1	100	0	0	0	12.35	5.58	Yes
MAGPIE CREEK	NWLO	1999.04	46	3	71	29	0	0	13.00	4.40	Yes
RHODES DRAW	NWLO	1999.04	0	3	73	0	27	0	12.00	3.08	Yes
CYCLONE/COAL 99	NWLO	1999.06	60	2	100	0	0	0	7.20	9.62	Yes
BOYER FIRE SALVAGE	NWLO	1999.06	73	5	78	22	0	0	10.90	8.85	Yes
ROLLINS CHUNK	NWLO	1999.07	7	4	61	11	28	0	10.40	4.52	Yes
BLUE BAY	NWLO	1999.08	85	4	100	0	0	0	11.23	8.16	Yes
BEAVER '99	NWLO	1999.08	66	3	100	0	0	0	7.00	3.35	Yes
COOK BEAR	NWLO	1999.03	23	1	57	43	0	0	9.90	2.96	Yes
BLUE SLIDE	NWLO	1999.09	0	12	100	0	0	0	11.10	4.42	Yes
SMALL SQUEEZER	NWLO	2000.01	0	6	100	0	0	0	10.00	4.48	Yes
AVON SOUTH #2	SWLO	1998.07	0	2	100	0	0	0	12.20	3.52	NO
POTOMAC	SWLO	1998.08	0	2	100	0	0	0	10.40	1.85	NO
2% CABLE	SWLO	1998.08	0	1	69	31		0	12.40	2.37	NO
TARKZEAU REGULAR	SWLO	1999.06	0	3	100	0	0	0	9.00	2.38	Yes
PAINTED ROCKS	SWLO	1999.06	0	2	58	23	0	19	11.60	3.03	NO
FLAT PARDEE	SWLO	1999.06	0	4	25	75	0	0	11.70	4.77	NO
CLEARWATER RVR #1	SWLO	1999.07	0	4	89	11	0	0	9.82	3.77	NO
MCKAY CREEK	SWLO	1999.07	0	3	100	0	0	0	11.31	3.27	NO
AVON EAST	SWLO	1999.12	0	2	100	0	0	0	10.00	3.12	Yes
BLACKTAIL	CLO	1998.08	0	1	0	0	0	100	14.16	4.52	Yes
YANK CREEK	CLO	1999.01	70	1	100	0	0	0	10.10	9.16	NO

Table 3.3 Recent Winning Bids for Sales Sold in MBF from NELO and SLO Land Office

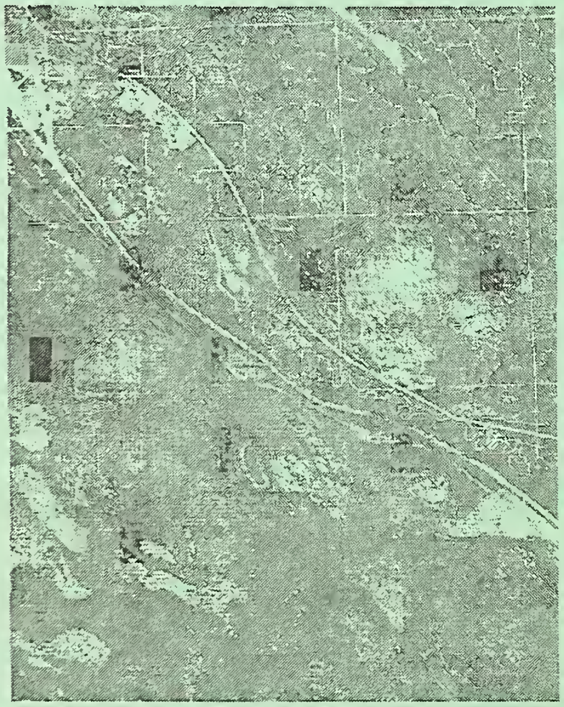
Sale Name	Land Office	Date Sold	FI Fee $/MBF	Development Cost $/MBF	Bull Pine MBF	Ponderosa Pine $/MBF	Intermediate Pine MBF	Intermediate Pine $/MBF	Douglas-Fir MBF	Douglas-Fir $/MBF
BEAVER BALL	NELO	07/15/1998	$10	$20.82	907	$ 90	0	$-	0	
POTTER CR	NELO	07/15/1998	$20	$27.28	434	$ 90	0	$-	44	$90
KIRBY	SLO	12/08/1998	$ 8	$ -	0	$ -	338	$153	0	
EAST PARROT	SLO	06/01/1999	$ 8	$ -	0	$ -	433	$128	0	
REHDER CR	SLO	07/28/1999	$ 8	$ -	0	$ -	201	$141	0	
WEST PARROT	SLO	10/20/1999	$ 8	$ -	337	$ 132	0	$-	0	

Table 3.4 Recent Winning Bids and Sale Characteristics for Sales Sold in MBF from NELO. ELO and SLO Land Office

Sale Name	Land Office	Total MBF	Average DBH	Harvest Volume MBF/Acre
BEAVER BALL	NELO	907	12.8	3.6
POTTER CR	NELO	478	14.4	13.1
KIRBY	SLO	338	14.0	3.5
EAST PARROT	SLO	433	13.0	2.3
REHDER CR	SLO	201	13.6	1.8
WEST PARROT	SLO	337	13.3	1.5

Table 3.5 Recent Winning Bids and Sale Characteristics for Sales Sold in Tons from NELO. ELO and SLO Land Office

Sale Name	Land Office	Date Sold	FI Fee $/Tons	Development Costs $/Ton	Purchaser-do Slash $/Ton	Mixed Conifer Volume Tons	Price $/Ton	Average DBH	Harvest Volume Tons/Acre
ASPEN	ELO	04/06/1999	$1.47		$ 1.07	10021	$15	13.2	27.4
CADWELL	ELO	04/28/1999	$1.47		$ 1.07	6075	$23	14.4	13.1
REAL FIRE GULCH	ELO	08/30/1999	$1.47		$ 1.07	1378	$13	14.5	18.4
TEN MILE	ELO	02/01/2000	$1.47		$ 1.07	4229	$23	15.1	16.3
MIDDLE BENCH	NELO	12/21/1998	$0.60	$3.81	$ -	8889	$15	12.0	35.0
PINE RIDGE	SLO	01/06/1999	$1.00		$ -	2368	$12	15.0	13.5



GIS TECHNOLOGY UPDATE

Donna Leeper

The inventory section has several contracts for data that have just finished or are just starting.

Finished

NWLO and SWLO base data at 1:24000

Ken Wall of Geodata Inc. recently delivered the base data developed from the USFS cartographic feature files. We contracted to have this data converted from its existing format to PAMAP format for use in our GIS. The data were then organized into the standard OASIS map format for use in the field offices, and both land office maps are now available. The following data are available at 1:24000 on these maps: USGS 7.5 min quad boundaries and names, unit boundaries, section lines and numbers, trails, lakes, streams, man-made water features, soil type, ownership (from 1:100000 BLM maps), roads, power lines, railroads, mountain goat winter range, moose winter range, elk winter range, mule deer winter range, and white tail deer winter range. Timber stand polygons are available for some areas. There are currently some holes in the data due to the lack of data available from the Forest Service. There are plans to add this data from the USGS 7.5 min quads in-house.

Ownership with DNRC ownership split from other state owners.

Ken Wall of Geodata Inc. recently delivered the 1:100000 ownership maps for the entire state. We have been working with this coverage for a while now, and while it does have some inconsistencies when compared to the master DNRC ownership list, it is generally useful. We have recently used it to finish up a project requested by the legislature for Senate Bill 411.

Let February 2000

Digitizing timber stand polygons for Libby and Missoula Units.

Ken Wall of Geodata Inc. was recently awarded the contract for digitizing timber stand polygons for Missoula and Libby Units. I will be working closely with him on the addition of this data to our master maps. Geodata will digitize the stand boundaries as well as any new roads inside of the stand. This contract is to be finished by the end of 2000.

Stand Level Inventory update of the Stillwater state forest

Create Orthophoto coverage for the Stillwater State Forest

As part of our regular updating process, an RFP for collecting stand level data for the Stillwater is being developed at this time by Brian Long. As part of the process of determining which stands need to be re-inventoried, an orthophoto coverage of the Stillwater State Forest and the immediately adjacent areas is being developed in house from air photos taken 1996 and 1997. Road positions will also be updated from this orthophoto in addition to determining which polygons need to be updated.

In addition to the outside contracts, we currently have a number of in-house projects.

Digitizing timber stand polygons for Kalispell Unit.

Our intern from the University of Montana is currently digitizing stand polygons and adding new roads from the section sheets for Kalispell unit.

Adding the missing data to the NWLO and SWLO base maps

We are planning to add another intern here in the office to begin filling in the data holes in the base maps for both NW and SW Land Office. These are major digitizing tasks and will be ongoing over time.

We are also currently looking at updating our current GIS software.

OASIS

We are currently looking into replacing OASIS as our Unit based GIS software. I have recently discovered that the current version of OASIS is not totally Y2K compatible. There are two routines in the software that crash if it is run without setting the date back to 1999. It is still usable with some simple work-arounds, however the company the markets the software is no longer supporting it and will not be making the any upgrades in the future. It is essentially a dead software.

PAMAP 5.2b

I received the much anticipated update of PAMAP recently. In addition to general improvements, there had been promised a working shape file translator with this version. I was happy to find that it does work as promised. We are now able to translate PAMAP polygon coverage into ArcView as well as lines and text. However, there is no plan at the current time to change any or all of our data into ArcView. This does give us the option to do so at some future date.

Future directions in GIS software

We are currently looking at replacements for OASIS because of the problems with Y2K compliance and because it is no longer supported by its parent company. We are not committed to continuing with PCI products, but will be looking at ArcView as well. There are pros and cons to switching to ArcView as well as staying with the PCI product line. Brian and I have been approached about the possibility of some Units or Land Offices switching to ArcView even if we decide to stay with the PCI line, because personnel there already know how to operate the software and are more comfortable with it. However, we have been resistant to this due to the extra effort it would require to maintain two full copies of all maps.

The choice of a software product whether it is a PCI product, or an ESRI product will be made for all units. We are not going to attempt to support two software packages in Unit offices. Both Brian and I agree that support of two different software packages would not be productive for reasons of cost of data development and training difficulties. So we will decide on one package for use in the Units and Land Offices.

We are also not planning to change from PAMAP to ArcInfo as our full fledged GIS package at this time. There are a number of reasons for this. Primarily, PAMAP has and continues to do everything that we need it to do for our work here with forest inventory. The one analysis that PAMAP cannot do is handled by our copy of ERDAS. Switching from PAMAP to ArcInfo would entail a very large investment in money and time for both training and data conversion. In addition, while converting over, there would be a substantial period during which analysis needs would not be met until personnel could be trained in using the new software. This is not to say that a move to ArcInfo will never occur. We keep current with updates to both software programs and if, in the future, it is advantageous to the agency to make the switch between the software packages, we will do so at that time.

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